



CITY OF RICHMOND

DEPARTMENT OF PUBLIC UTILITIES

OFFICE OF THE DIRECTOR

13 December 2006

RECEIVED

DEC 15 2006

PRO

Mr. Gerard Seeley Jr.
Regional Director
Piedmont Regional Office
Department of Environmental Quality
4949-A Cox Road
Glen Allen, Virginia 23060

Re: City of Richmond Virginia Special Order by Consent and VPDES Permit
VA0063177, 2005 Compliance and Progress Report

Dear Mr. Seeley:

In compliance with SECTION A.4 of the STATE WATER CONTROL BOARD ENFORCEMENT ACTION SPECIAL ORDER BY CONSENT (Order) ISSUED TO THE CITY OF RICHMOND, Permit No. VA0063177, effective 17 March 2005, please accept this Compliance and Progress Report (Report) describing progress made in the previous fiscal year in controlling Combined Sewer Overflows (CSOs) and plans for further implementation of the Long Term Control Plan (LTCP) in the near and long term future. This Report contains all the elements required in SECTION A.4. listed in the Order as follows:

"1. An independent rate consultant report that includes schedules and other material designed to demonstrate compliance with the above funding and spending criteria. At a minimum, the independent rate consultant's report will include:

- a. A schedule of sewer rates and charges in effect during the year and an explanation of any changes in the sewer rates and charges during the year;***
- b. A schedule that calculates the current year annual sewer bill for a residential customer with a 7 ccf average monthly sewer use and the percentage of such bill to median household income in the City;***
- c. A schedule detailing sewer related revenues, operation and maintenance expenses, net revenues, debt service, reserve funds and the sewer debt service coverage ratio for the previous year;***
- d. A schedule detailing amounts borrowed, grants, and other sources of capital funds, and the amount of capital funds obligated for water quality projects during the previous year; and,***

- e. A schedule displaying the industrial rate structure and progress toward the goal of parity between industrial and residential rates.*
- 2. An accounting of all sums expended on implementation of specific CSO projects contained in the LTCP in the previous fiscal year and in each fiscal year since the effective date of this Order.*
- 3. An accounting of all sums obligated in the current fiscal year, and funds projected to be obligated within the next five years for implementation of specific CSO projects contained in the LTCP.*
- 4. A narrative report of the status of each CSO project identified in the LTCP including projected completion dates contingent upon funding availability.*
- 5. A status report of progress being made in procuring state and federal grants and low interest loans for the purpose of implementing specific elements of the LTCP."*

COMPLIANCE STATEMENT

Based on information referenced in Attachment No. 1 (Exhibits 1 through 3) of this Report, we confirm to you the following:

1. Effective July 1, 2006, the sewer rates and charges were adjusted in accordance with Section A.1 of Appendix A to the CSO Special Order dated March 17, 2005. See Exhibit 1 for a summary of the sewer rate changes for the most recent five year period.
2. As of July 1, 2006, the annual sewer bill for residential customers with 7 ccf of average monthly sewer use was 1.20% of MHI for the City of Richmond. See Exhibit 2 for details. The Order requires the City to increase sewer rates such that the annual sewer bill for a typical residential customer with 7 ccf of average monthly sewer use will be at least 1.25% of MHI by March 17, 2010. As shown on Exhibit 1, rate increases over the last three years have averaged 5.5% during a period when the Consumer Price Index (CPI) has increased approximately 3% per year. The City of Richmond plans to continue to increase sewer rates at 5.5% until the annual sewer bill for a customer with 7 ccf of average monthly use is at least of 1.25% of MHI.
3. Sewer rates for residential customers were less than rates charged to Commercial and Industrial customers. See Exhibit 1 for details.
4. For the year ended June 30, 2006, the debt coverage ratio in the City's Sewer Fund was 1.38 compared with the 1.75 maximum limit stipulated in the Special Order. See Exhibit 3 for details.

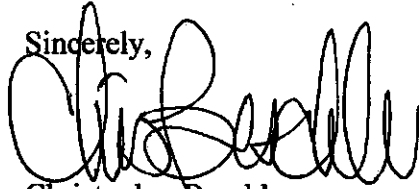
5. During the year ended June 30, 2006, the City obtained the following capital funds that were used for CSO and water quality project appropriations.

Revenue bonds	\$10,038,438
Grants/Construction-in-Aid funds	738,962
Working capital transfers	<u>5,679,055</u>
Total	<u>\$16,456,455</u>

Attachments No. 2 through No. 4 provides a status report on information required by the Order in Sections A.4.2. through A.4.5.

As required by the Order, the City agrees to meet with the Department in December, 2005, and every December thereafter, to discuss the status of the CSO projects required under this Order. By way of this letter, the City requests such a meeting with the Department. Please contact this office to schedule the meeting at a mutually convenient date and time.

Sincerely,



Christopher Beschler

Director

Department of Public Utilities

- c: Robert C. Steidel, Deputy Director, City of Richmond – DPU
Wayne Lassiter, Utilities Comptroller, City of Richmond - DPU
Walter Gills, Program Director, DEQ - Headquarters
Gerard Seeley Jr., Regional Director, DEQ - PRO
Corey Chamberlain, DEQ – PRO, Environmental Specialist II
Frank Lupini, Enforcement Specialist Senior, DEQ - PRO
David Seitz, City of Richmond
Federico Maisch, Greeley and Hansen
File

Attachments

Attachment No. 1

(SECTION A.4.1.) An independent rate consultant report and Exhibit 1, Exhibit 1a, Exhibit 1b, Exhibit 2 and Exhibit 3.

Attachment No. 2

(SECTION A.4.2.) An accounting of all sums expended on implementation of specific CSO projects contained in the LTCP in the previous fiscal year and in each fiscal year since 17 March 2005 and, Exhibit 4.1 and Exhibit 4.2.

Attachment No. 3

(SECTION A.4.3.) An accounting of all sums obligated in the current fiscal year, and funds projected to be obligated within the next five years for implementation of specific CSO projects contained in the LTCP and Exhibit 5.

Attachment No. 4

(SECTION A.4.4. and SECTION A.4.5.) A narrative report of the status of each CSO project identified in the LTCP including projected completion dates contingent upon funding availability and a status report of progress being made in procuring state and federal grants and low interest loans for the purpose of implementing specific elements of the LTCP.



KPMG LLP
Suite 2000
1021 East Cary Street
Richmond, VA 23219-4023

Independent Accountants' Report on Applying Agreed-Upon Procedures

Mr. William E. Harrell
Chief Administrative Officer
City of Richmond, Virginia:

We have performed the procedures enumerated below, as promulgated in the Commonwealth of Virginia Department of Environmental Quality's (DEQ) Consent Order, *Section A.4.1*, solely to assist in evaluating the financial data that the City's DEQ Compliance Letter (the Letter) specifies as having been derived from the City of Richmond, Virginia (City) Department of Public Utilities (DPU) financial records. This agreed-upon procedures engagement was performed in accordance with attestation standards established by the American Institute of Certified Public Accountants. The sufficiency of these procedures is solely the responsibility of the specified users of this report. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

As requested, we have performed the following agreed-upon procedures:

- With respect to the amounts included in Exhibits 1 and 1a of the Letter, we agreed the rate amounts per the exhibits for each year to the related City Ordinances. Additionally, for all years presented, the residential customers' rates were less than the commercial and industrial customers' rates.
- With respect to the amounts included in Exhibit 2 of the Letter, we performed the following:
 - Agreed the effective rate and monthly service charge per the exhibit to the related 2002 through 2006 City Ordinances;
 - Agreed the 2000 MHI amount per the exhibit to United States Census Bureau's Summary Social, Economic, and Housing Characteristics report Table 13 – Household Income, and the CPI index percentage per the exhibit to the United States Department of Labor Bureau of Labor Statistics Consumer Price Index – All Urban Consumers – U.S. City Average report; and
 - Re-performed the calculations and footed the amounts per the exhibit and found them to be mathematically accurate.
- With respect to amounts included in Exhibit 3 of the Letter, we performed the following:
 - Agreed all respective revenue amounts listed per the exhibit to the City's Comprehensive Annual Financial Report (CAFR) for each fiscal year presented;
 - Agreed all respective expense amounts per the exhibit to the City Department of Public Utilities' (DPU) reconciliation to the City's CAFR for each fiscal year presented;
 - Agreed the respective debt service amounts per the exhibit to the City's general ledger for each fiscal year; and



- Recalculated the respective revenue bond amounts, added to the debt service balance, per the exhibit, as 115% of the City's total revenue bonds outstanding at each fiscal year ended, as required by the DEQ Consent Order.
- With respect to amounts included in item 5 of the "Compliance Sheet" section of the Letter, we performed the following:
 - Agreed the "Grants/Construction-In-Aid funds" to the City's CAFR for June 30, 2006; and
 - Agreed the total balance noted (\$16,456,455) to Exhibit 4.2 and recalculated the "Revenue Bonds" amount based on DPU's 61% of the total balance allocation and agreed the components of the allocation percentage to DPU's "Ten-year Forecast." Recalculated the "Working Capital Transfer" balance as the difference between the total amount and the amounts for "Revenue Bonds" and "Grants/Construction-In-Aid."

We were not engaged to, and did not perform an audit, the objective of which would be the expression of an opinion on the specified elements, accounts, or items. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you. This report relates only to the items specified above and does not extend to any other items or financial statements of the City, taken as a whole.

This report is intended solely for the information and use of City management and the Virginia Department of Environmental Quality, and is not intended to be and should not be used by anyone other than these specified parties.

KPMG LLP

December 13, 2006

WASTEWATER CHARGES FOR SERVICES

Per Section A.4. Requirement 1.a.

See Explanatory notes on Exhibit 1b

	<u>7/1/2002</u>	<u>7/1/2003</u>	<u>7/1/2004</u>	<u>7/1/2005</u>	<u>7/1/2006</u>
Volume Charge - Residential	\$1.360	\$1.428	\$1.513	\$1.597	\$1.684
Volume Charge - Commercial	1.842	1.934	2.050	2.163	2.282
Volume Charge - Industrial	1.861	1.954	2.071	2.185	2.305
Volume Charge - Municipal	1.780	1.869	1.981	2.090	2.205
Monthly Service Charge (5/8" Meter)	20.86	21.90	23.22	24.49	25.84
Private Water Supply (non-meter)	29.54	31.02	32.88	34.69	36.59
Strong Wastewater Charge (275 mg/l)	19.465	20.438	21.665	22.856	24.113
Strong Wastewater Charge (250 mg/l)	16.816	17.657	18.716	19.745	20.831

Exhibit 1

WASTEWATER CHARGES FOR SERVICES

Per Section A.4. Requirement 1.a.

See Explanatory notes on Exhibit 1b

	<u>7/1/2002</u>	<u>7/1/2003</u>	<u>7/1/2004</u>	<u>7/1/2005</u>	<u>7/1/2006</u>
Commercial and Industrial Wastewater Rates					
Monthly Service Charge (5/8" Meter)	\$20.86	\$21.90	\$23.22	\$24.49	\$25.84
Monthly Service Charge (3/4" Meter)	\$31.22	\$32.78	\$34.75	\$36.66	\$38.67
Monthly Service Charge (1" Meter)	\$52.13	\$54.73	\$58.02	\$61.21	\$64.58
Monthly Service Charge (1-1/2" Meter)	\$114.73	\$120.47	\$127.70	\$134.72	\$142.13
Monthly Service Charge (2" Meter)	\$208.43	\$218.85	\$231.98	\$244.74	\$258.20
Monthly Service Charge (3" Meter)	\$479.51	\$503.49	\$533.70	\$563.05	\$594.02
Monthly Service Charge (4" Meter)	\$854.74	\$897.48	\$951.33	\$1,003.65	\$1,058.85
Monthly Service Charge (6" Meter)	\$1,917.89	\$2,013.78	\$2,134.61	\$2,252.01	\$2,375.87
Monthly Service Charge (8" Meter)	\$3,439.81	\$3,611.80	\$3,828.51	\$4,039.08	\$4,261.23
Monthly Service Charge (10" Meter)	\$5,316.13	\$5,581.94	\$5,916.86	\$6,242.28	\$6,585.61
Volume Charge (Commercial)	1.842	1.934	2.050	2.163	2.282
Volume Charge (Industrial)	1.861	1.954	2.071	2.185	2.305

Exhibit 1a

WASTEWATER RATE HISTORY

Explanation of Rates

- 1. Sewer use is typically billed at the appropriate volume rate. Generally usage is based on metered water consumption. In cases where the customer uses a private water supply, a flat rate is charged for sewer services.**
- 2. In addition to charges for usage, customers are charged a capacity charge that is dependent on the size of the meter that is required to service the customer. Meters range from 5/8 inch to 10 inches in diameter and service charges vary from \$25.84 to \$6,585.61 per month.**
- 3a. Strong wastewater charges (275mg/l) are to cover treatment costs when wastes, containing concentrations of suspended solids that exceed 275 milligrams per liter, are discharged into the City's wastewater system.**
- 3b. Strong wastewater charges (250mg/l) are to cover treatment costs when wastes, containing concentrations of BOD (Biochemical Oxygen Demand) that exceed of 250 milligrams per liter, are discharged into the City's wastewater system.**

ANNUAL WASTEWATER BILL AS A PERCENT OF MHI

Per Section A.4. Requirement 1.b.

ANNUAL RESIDENTIAL WASTEWATER BILL:	<u>7/1/2006</u>
Effective rate @ 7 ccf	\$1.684
Average monthly use in ccf	x <u>7</u>
Volume charge	<u>11.79</u>
Monthly service charge	<u>25.84</u>
Total monthly wastewater bill	<u>37.63</u>
	x <u>12</u>
Annual wastewater bill	<u><u>\$451.54</u></u>
 MEDIAN HOUSEHOLD INCOME (MHI) CALCULATION	
2000 MHI per U.S.Census Bureau	\$31,121
CPI index from Dec 1999 to Jul 2006 (203.5/168.3)	x <u>1.209</u>
2006 estimated MHI	<u><u>\$37,630</u></u>
 ANNUAL WASTEWATER BILL AS A % OF MHI	<u><u>1.20%</u></u>

Notes:

1. CPI data from US Department of Labor:

December 1999 Index = 168.3

July 2006 Index = 203.5

DEBT SERVICE COVERAGE

Per Section A.4. Requirement 1.c.

	Fiscal Year 2002	Fiscal Year 2003	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006
REVENUES:					
Operating Revenues	42,924,688	43,980,217	45,427,916	47,902,946	50,789,214
Interest Income	942,526	694,672	330,173	478,138	1,405,822
Total Revenues	43,867,214	44,674,889	45,758,089	48,381,084	52,195,036
OPERATING & NON-OPERATING EXPENSES					
Operating Expenses	8,377,229	3,732,657	5,306,684	4,228,840	7,142,435
DIT	1,112,355	1,350,098	1,192,412	1,216,597	222,790
Contractors	2,251,631	2,402,602	3,386,881	3,375,888	2,704,087
Salaries & Wages	6,615,826	6,687,046	6,742,376	6,733,993	6,837,594
Materials & Supplies	548,838	566,229	539,833	762,002	677,164
Rents & Utilities	1,958,187	1,730,881	2,097,985	2,107,497	2,258,246
Maintenance & Repairs	2,506,941	2,288,553	2,418,602	3,931,082	5,116,871
Taxes & Licenses	5,548,738	6,378,869	5,829,445	6,502,934	6,863,942
Total Operating & Non-Operating Expenses	28,919,745	25,136,935	27,514,218	28,858,834	31,823,129
NET REVENUES	14,947,469	19,537,954	18,243,871	19,522,250	20,371,907
DEBT SERVICE					
General Obligation Bonds (100%)	3,432,275	4,267,548	5,546,318	6,129,644	5,537,455
Revenue Bonds (115%)	7,522,386	8,968,826	8,886,511	9,153,359	9,216,629
Total Debt Service	10,954,661	13,236,374	14,432,829	15,283,003	14,754,084
DEBT COVERAGE	1.36	1.48	1.26	1.28	1.38

PROJECT APPROPRIATIONS

Projects are normally appropriated at the beginning of each fiscal year when the City's Capital Improvement Program (CIP) is approved by the City Council. City staff is authorized to expend money on individual projects after project construction bids are received and approved. Since July 1, 2000, the City has expended, authorized and appropriated \$369,945,800 for CSO and other water quality projects. A summary of these amounts is shown below:

	CSO	Water Quality	Total
Prior to FY 2002 Expenditures	\$92,493,504	\$38,015,329	\$130,508,833
FY 2002 Expenditures	14,802,702	5,944,070	20,746,772
FY 2003 Expenditures	14,730,477	6,432,187	21,162,664
FY 2004 Expenditures	1,982,916	12,418,163	14,401,079
FY 2005 Expenditures	1,621,858	9,462,920	11,084,778
FY 2006 Expenditures	625,047	15,831,408	16,456,455
Unexpended Authorizations	9,848,362	31,289,857	41,138,219
Appropriations to be Authorized	6,414,000	108,033,000	114,447,000
Totals	\$142,518,866	\$227,426,934	\$369,945,800

Exhibit 4 contains an itemization of project expenditures and unexpended authorizations from July 1, 2000 to June 30, 2006. Unexpended authorizations represent the remaining budgets on projects under construction at June 30, 2006. Appropriations to be authorized represent approved CIP amounts that have not been authorized for specific projects at June 30, 2006. This occurs because project bids cannot always be received and approved in the same year that projects are appropriated.

PROJECT EXPENDITURES

1. CSO Projects Authorized

Per Section A.4. Requirement 2.

Project Description	Prior to FY 02 Expenditures	FY 02 Expenditures	FY 03 Expenditures	FY 04 Expenditures	FY 05 Expenditures	FY 06 Expenditures	Cumulative Expenditures	Unexpended Amount
CSO 4&5 - Hampton Street Retention Tunnel	\$19,442,558	\$14,703,481	\$14,420,735	\$1,880,509	\$1,533,202	\$134,785	\$52,115,270	(\$615,270)
Swirl Concentrators	885,322	401,447	49,629	0	43,200	43,200	1,422,798	417,202
Shockoe Retention System	1,351,600	0	0	0	45,456	48,055	1,445,111	4,454,889
James River Monitoring	1,468,363	151,325	72,614	59,251	0	0	1,751,553	(351,553)
CSO Re-Evaluation Study	225,000	280,000	173,511	43,212	0	0	721,723	753,277
CSO Phase III - PPP	0	0	0	0	0	162,790	162,790	842,210
CSO Phase III - 1 Regulators 24,25,26	0	0	0	0	0	0	0	4,408,000
CSO Phase III - 3 Regulators Design 12,14,39	0	0	0	0	0	75,515	75,515	843,485
CSO Phase III - 2 Separation Design Fulton Bottom	0	0	0	0	0	20,767	20,767	63,130
CSO Phase III - 2 Separation Design Maury Street	0	0	0	0	0	39,791	39,791	126,261
CSO Phase III - 2 Separation Design Orleans & Nicholson Sts	0	0	0	0	0	39,790	39,790	126,261
CSO Phase III - 5 Oakwood In-Line Equalization	0	0	0	0	0	60,354	60,354	439,646
Total CSO Projects	\$23,372,843	\$15,536,253	\$14,716,489	\$1,982,972	\$1,621,858	\$625,047	\$57,855,462	\$11,507,538
Projects Authorized prior to 07/01/2000	69,120,661	(733,551)	13,988	(56)	0	0	68,401,042	(1,659,176)
	\$92,493,504	\$14,802,702	\$14,730,477	\$1,982,916	\$1,621,858	\$625,047	\$126,256,504	\$9,848,362

PROJECT EXPENDITURES

2. Other Water Quality Projects Authorized
Per Section A.4. Requirement 2.

Project Description	Prior to FY02 Expenditures	FY 02 Expenditures	FY 03 Expenditures	FY 04 Expenditures	FY 05 Expenditures	FY 06 Expenditures	Cumulative Expenditures	Unexpended Amount
Lift Stations Upgrade	\$0	\$255,409	\$44,127	\$34,800	\$467,670	\$12,118	\$814,124	\$36,876
Secondary Grit Removal	30,953	30,406	16,679	0	0	0	78,038	(23,038)
Replace VFD's-Main/Supplemental Pumping	0	0	302	1,488,196	331,756	63,302	1,883,556	(258,556)
Miscellaneous Treatment Plant Upgrades	57,152	73,468	10,328	285,073	155,120	0	581,141	95,859
Main Pump Station Replacements	0	0	0	119,654	77,855	133,192	330,701	269,299
Blower Switchgear/DC System Replacements	0	0	5,722	97,867	161,460	678,536	943,585	456,415
Master Plans & Floodwall Study	0	0	851,441	363,918	50,514	35,082	1,300,955	(243,955)
Plant Projects Consolidation	0	273,265	159,085	416,735	364,684	89,625	1,303,394	(81,394)
Chlorine Slide Gate Replacements #2 thru #6	0	0	0	5,910	1,603	190,017	197,530	242,470
Reliability & Upgrade of Sewer Crossing	0	0	0	79,312	0	0	79,312	169,688
Primary Sedimentation Facility Improvements	0	0	0	227,324	105,146	3,079,210	3,411,680	8,382,320
Final Sedimentation Facility Improvements	0	0	0	150,240	107,672	3,452,107	3,710,019	5,793,981
Security Enhancements	0	0	0	0	143,996	11,019	155,015	1,294,985
Scum Study	0	0	0	30,034	20,442	13,672	64,148	(7,148)
Grit Study	0	0	0	36,298	17,450	6,193	59,941	(2,941)
Upgrade Sludge Thickening - Tanks & Gallery Ph. 1	0	0	0	0	0	0	0	244,000
Electrical Coordination Study	0	0	0	0	0	0	0	22,000
Structural/Mechanical Dewatering Assessment	0	0	0	0	0	0	0	83,000
Alternative Power/Energy	0	0	0	0	0	0	0	107,000
Motor Management Relay	0	0	0	0	0	0	0	14,000
BNR Basis of Design	0	0	0	140,678	58,673	0	199,351	50,649
Odor Control Basis of Design	0	0	0	0	0	8,713	8,713	16,287
Database Intergration	0	0	0	0	0	0	0	82,000
Maury Street Septage Hauler Station	0	0	0	0	0	0	0	251,000
Hospital Street Septage Hauler Station	0	0	0	0	0	0	0	251,000
Administration Building HVAC	0	0	0	0	0	0	0	67,000
Interim Chlorination/Dechlorination	0	0	0	0	0	20,912	20,912	174,088
Flood Protection Sealing	0	0	0	0	0	0	0	21,000
Main Switchgear Improvements	0	0	0	0	0	0	0	352,000
MIS Phase III	0	0	0	0	0	0	0	490,000
BNR Phase I	0	0	0	0	0	0	0	3,600,000
Annual Sanitary Sewer Rehabilitation (City Wide)	3,069,866	4,757,236	5,007,265	7,559,931	5,114,800	5,077,586	30,586,684	5,369,252
Annual Sanitary Sewer Emergency Repairs (City Wide)	257,358	554,286	337,238	1,148,208	529,686	949,020	3,775,796	500,000
Sanitary Sewer Ancillary Projects (City Wide)	0	0	0	233,985	1,754,393	708,410	2,696,788	982,590
Sixth Street Sewer Repair Project	0	0	0	0	0	1,000,000	1,000,000	0
Lady Bird Hat Company Sewer Relocation	0	0	0	0	0	302,694	302,694	(52,694)
Gillies Creek Sewer Upgrade Area GC-04	0	0	0	0	0	0	0	4,200,000
Total Water Quality Projects Expenditures	\$3,415,329	\$5,944,070	\$6,432,187	\$12,418,163	\$9,462,920	\$15,831,408	\$53,504,077	\$32,949,033
Projects Authorized prior to 07/01/2000	34,600,000	0	0	0	0	0	34,600,000	(1,659,176)
	\$38,015,329	\$5,944,070	\$6,432,187	\$12,418,163	\$9,462,920	\$15,831,408	\$88,104,077	\$31,289,857
Total All Projects (Sum of Exhibits 4.1 and 4.2)	\$130,508,833	\$20,746,772	\$21,162,664	\$14,401,079	\$11,084,778	\$16,456,455	\$214,360,581	\$41,138,219

Exhibit 4.2

PROJECT EXPENDITURES

3. CSO Capital Improvement Projects

Per Section A.4. Requirement 3.

NOTE: All amounts are in (000's)	TOTAL PRIOR AUTH.	FY07	FY08	FY09	FY10	FY10	TOTAL
Initial Basic CSO Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Canoe Run to Mayo's	17,866	0	0	0	0	0	17,866
42nd Street to Canoe Run	12,204	0	0	0	0	0	12,204
Park Hydro to Shockoe	23,420	0	0	0	0	0	23,420
Hampton Street Retention Tunnel	51,500	0	0	0	0	0	51,500
Swirl Concentrators	1,840	0	0	0	0	0	1,840
Shockoe Retention	5,900	0	5,200	0	0	0	11,100
Sludge Storage	3,950	0	0	0	0	0	3,950
Sludge Grit Removal	1,750	0	0	0	0	0	1,750
Ammonia Removal	7,600	0	0	0	0	0	7,600
Canal Project	26,466	0	0	0	0	0	26,466
River Monitoring	1,400	0	0	0	0	0	1,400
CSO Re-Evaluation Study	1,475	0	0	0	0	0	1,475
CSO Phase III PPP	1,005	0	0	0	0	0	1,005
CSO Phase III-1 Regulators 24,25,26	4,408	0	0	0	0	0	4,408
CSO Phase III-2 Separation Design	0	416	0	0	0	0	416
CSO Phase III-3 Regulator Design	0	919	0	0	0	0	919
CSO Phase III-4 Lower Gillies Design	0	2,707	1,214	0	0	0	3,921
CSO Phase III-5 Oakwood In-Line Storage	0	500	0	0	0	0	500
Total	<u>\$160,784</u>	<u>\$4,542</u>	<u>\$6,414</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$171,740</u>

Section A.4.4: This section requires the City to prepare “a narrative report of the status of each CSO project identified in the LTCP including projected completion dates contingent upon funding availability”. The City’s Long-Term Control Plan (LTCP) components of the CSO Control Plan E are described in the following table:

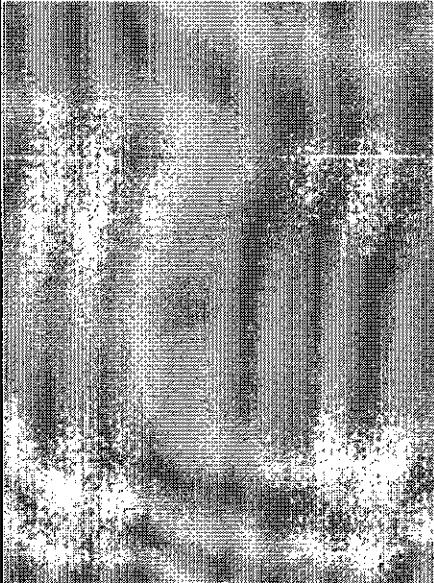
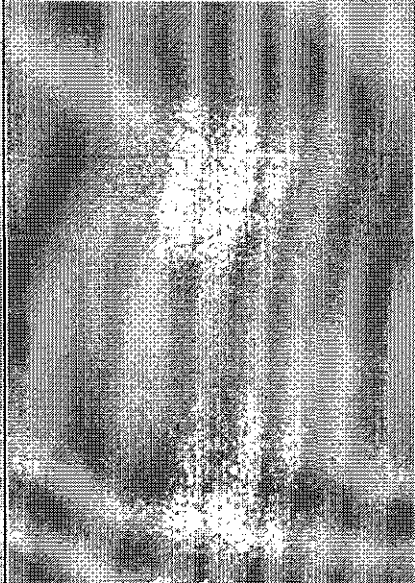
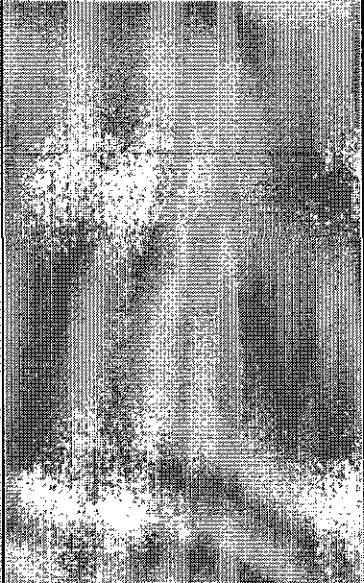
PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
CSO Disinfection Study	Determines the most cost effective method of disinfecting CSO discharges at the Shockoe retention basin and the City’s WWTP	Due to DEQ June 30 2005	This report was submitted to DEQ on June 30 2005. The report was approved by DEQ on November 29 2005.	June 30, 2005
Phase III Program Project Plan	Develops program project plan(s) for implementing the elements of the CSO Control Plan E.	Due to DEQ December 31 2006	The Phase III Program Project Plan is being prepared and is on schedule for completion by December 31, 2006.	December 31, 2006
Solids and Floatable Control Regulator for CSO Outfall No. 024	Provides solids and floatables treatment for CSO Outfall 024 prior to discharge to Gillies Creek and the James River. Part of the project for Solids and Floatable Control Regulators (#III-7) in the City’s Long Term Control Plan.	<ul style="list-style-type: none"> • Submit Preliminary Design Report June 30 2005 • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 20 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete. 	PDR submitted to DEQ on 30 June 2005 and additional copies submitted on 14 October 2005. The PDR was approved by DEQ on November 29 2005. The final design was submitted to DEQ on May 25 2006. The final design was approved by DEQ on June 26 2006. The City received six (6) contractors’ responses to the RFQ on October 20 2006.	PDR: June 30, 2005 Design: May 25, 2006

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Solids and Floatable Control Regulator for CSO Outfall No. 026	Provides solids and floatables treatment for CSO Outfall 026 prior to discharge to Gillies Creek and the James River. Part of the project for Solids and Floatable Control Regulators (#III-7) in the City's Long Term Control Plan.	<ul style="list-style-type: none"> • Submit Preliminary Design Report June 30 2005 • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 20 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete. 	PDR submitted to DEQ on 30 June 2005 and additional copies submitted on 14 October 2005. The PDR was approved by DEQ on November 29 2005. The final design was submitted to DEQ on May 25 2006. The final design was approved by DEQ on June 26 2006. The City received six (6) contractors' responses to the RFQ on October 20 2006.	PDR: June 30, 2005 Design: May 25, 2006
Solids and Floatable Control Regulator for CSO Outfall No. 025	Provides solids and floatables treatment for CSO Outfall 025 prior to discharge to Gillies Creek and the James River. Part of the project for Solids and Floatable Control Regulators (#III-7) in the City's Long Term Control Plan.	<ul style="list-style-type: none"> • Submit Preliminary Design Report June 30 2005 • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 20 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete. 	PDR submitted to DEQ on 30 June 2005 and additional copies submitted on 14 October 2005. The PDR report was approved by DEQ's PRO on November 29 2005. The final design was submitted to DEQ on June 26 2006. The final design was approved by DEQ on June 26 2006. The City received six (6) contractors' responses to the RFQ on October 20 2006.	PDR: June 30, 2005 Design: May 25, 2006

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Fulton Bottom Urban Renewal Separation Project	Separates combined sewers into separate sewers for the conveyance of sanitary sewage and storm water to eliminate discharges of combined sewer overflows from this CSO area into Gillies Creek and the James River. Part of the project for Separation of Select CSO Basins (#III-5) in the City's Long Term Control Plan.	<ul style="list-style-type: none"> • Submit Preliminary Design Report 3 months after DEQ approval of the Phase III Program Project Plan • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 36 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete. 	The PDR and final design is being prepared through a project funded by the Corps of Engineers, which commenced on May 18 2006.	PDR: 3 months after DEQ approval of PPP
Maury Street Separation Project	Separates combined sewers into separate sewers for the conveyance of sanitary sewage and storm water to eliminate discharges of combined sewer overflows from this CSO area into the James River. Part of the project for Separation of Select CSO Basins (#III-5) in the City's Long Term Control Plan.	<ul style="list-style-type: none"> • Submit Preliminary Design Report 3 months after DEQ approval of the Phase III Program Project Plan • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 48 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete. 	The PDR and final design is being prepared through a project funded by the Corps of Engineers, which commenced on May 18 2006.	PDR: 3 months after DEQ approval of PPP

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Orleans and Nicholson Street Separation Project	Separates combined sewers into separate sewers for the conveyance of sanitary sewage and storm water to eliminate discharges of combined sewer overflows from this CSO area into the James River. Part of the project for Separation of Select CSO Basins (#III-5) in the City's Long Term Control Plan.	<ul style="list-style-type: none"> • Submit Preliminary Design Report 3 months after DEQ approval of the Phase III Program Project Plan • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 60 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete. 	The PDR and final design is being prepared through a project funded by the Corps of Engineers, which commenced on May 18 2006.	PDR: 3 months after DEQ approval of PPP
Peripheral In-Line Flow Equalization at Oakwood	Captures and stores combined sewage in excess of the capacity of existing conveyance system, and conveys it to the WWTP once the conveyance and treatment capacities are restored. It attenuates peak combined sewer flows, provides a relatively constant flow into the WWTP and thus reduces the size and cost of treatment facilities.	<ul style="list-style-type: none"> • Submit Preliminary Design Report 3 months after DEQ approval of the Phase III Program Project Plan • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 72 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete. 	The PDR and final design is being prepared through a project funded by the Corps of Engineers, which commenced on May 18 2006.	PDR: 3 months after DEQ approval of PPP

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Solids and Floatable Control Regulator for CSO Outfall No. 012	Provides solids and floatables treatment for CSO Outfall 012 prior to discharge to Almond Creek and the James River. Part of the project for Solids and Floatable Control Regulators (#III-7) in the City's Long Term Control Plan.	<ul style="list-style-type: none"> • Submit Preliminary Design Report 3 months after DEQ approval of the Phase III Program Project Plan • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 84 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete 	The PDR and final design is being prepared through a project funded by the Corps of Engineers, which commenced on May 18 2006.	PDR: 3 months after DEQ approval of PPP
Solids and Floatable Control Regulator for CSO Outfall No. 014	Provides solids and floatables treatment for CSO Outfall 014 prior to discharge to Manchester Canal and the James River. Part of the project for Solids and Floatable Control Regulators (#III-7) in the City's Long Term Control Plan.	<ul style="list-style-type: none"> • Submit Preliminary Design Report 3 months after DEQ approval of the Phase III Program Project Plan • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 96 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete 	The PDR and final design is being prepared through a project funded by the Corps of Engineers, which commenced on May 18 2006.	PDR: 3 months after DEQ approval of PPP

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Solids and Floatable Control Regulator for CSO Outfall No. 039	Provides solids and floatables treatment for CSO Outfall 039 prior to discharge to Gillies Creek and the James River. Part of the project for Solids and Floatable Control Regulators (#III-7) in the City's Long Term Control Plan.	<ul style="list-style-type: none"> • Submit Preliminary Design Report 3 months after DEQ approval of the Phase III Program Project Plan • Submit Final Design to DEQ 6 months after DEQ approval of PDR. • Complete construction 108 months after DEQ approval of Final Design. • Place unit into operation 30 days after construction is complete 	The PDR and final design is being prepared through a project funded by the Corps of Engineers, which commenced on May 18 2006.	PDR: 3 months after DEQ approval of PPP
Lower Gillies Creek Conveyance System Project	Conveys combined sewer flows from the lower portion of the Gillies Creek CSO district to WWTP, and control these CSOs to 4 overflows per year. Conveys combined sewer flows from CSO Outfall 034 to Shockoe Retention Basin to reduce discharges of combined sewer overflows from this CSO area into the James River.			

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Wet Weather Flow Improvements at the WWTP: Solids Removal Improvements Project	Upgrades the primary treatment facilities to provide reliable treatment of up to 140 MGD wet weather flow; upgrades solids handling facilities to handle an increased solids loading associated with the increased CSO wet weather flow treatment.			

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Wet Weather Flow Improvements at the WWTP: Wet Weather Disinfection Facilities Project	Maximizes the wet weather treatment capacity to 300 MGD at WWTP; controls Gordon Avenue (CSO 021) outfall to 4 overflows per year. Upgrades the coarse screens, primary grit removal facilities, Main Pumping Station, and fine screens to provide reliable treatment of up to 300 MGD wet weather flow; Constructs a new wet weather disinfection facility at WWTP to treat flows up to 215 MGD (55 MGD primary effluent plus 160 MGD wet weather flow)			

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Wet Weather Flow Improvements at the WWTP: Expand Secondary Wet Weather Flow Treatment Project	Installs sedimentation enhancing technologies such as inclined plate settlers in the Final Sedimentation Tanks to increase the solids capture efficiency for up to 85 MGD wet weather flow; upgrades the return sludge and sludge withdrawals to increase the capacity of this facility.			

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Shockoe Retention Basin: Adapt Existing Basin for Pass Through Wet Weather Flow Project	Modifies Shockoe Diversion Structures, including trash rack improvement, solids removal and cleaning of Shockoe retention basin and diversion structure; Reconfigures aeration piping; Modifies retention basin bottom to slope to drain gates; Provides potential flushing system to clean the retention basin and diversion structures after every storm event.			
Shockoe Retention Basin: Shockoe Retention Basin 15 MG Expansion Project	Expands the Shockoe Retention Basin by 15 MG; Provides flushing system; Relocates outfall to east end of retention basin; Provides access for servicing and mechanically cleaning the retention basin.			

PROJECTS	DESCRIPTION	Milestone Dates	Status	Projected Completion Date Contingent on Funding Availability
Shockoe Retention Basin: Shockoe Wet Weather Disinfection Facility Project	Provides disinfection for the new Shockoe outfall CSOs to decrease bacterial loading to the James River by an 80% event mean reduction			

Section A.4.5. This section requires the City to prepare “a status report of progress being made in procuring state and federal grants and low interest loans for the purpose of implementing specific elements of the LTCP”. The City’s progress report on procuring grants and low interest loans is summarized in the following table:

Program Area	Grants			Loans	
	Virginia	EPA	Army Corps of Engineers	Virginia Clean Water Revolving Loan Fund	Other
Combined Sewer Overflow (CSO), Combined Sewer System (CSS)	<ul style="list-style-type: none"> • FY2006: Environmental Financial and Technical Assistance Grant in the amount of \$2,000,000.00. • FY2007: Environmental Financial and Technical Assistance Grant in the amount of \$3,750,000.00. 	<ul style="list-style-type: none"> • EPA FY 2003 & 2004 Appropriations Act Grant for the City of Richmond CSO Program \$1,638,700.00 	<ul style="list-style-type: none"> • FY2006 Energy and Water Appropriations (Public Law 109-103) signed by the President on November 19, 2005: \$750,000 for the Richmond CSO (requires a \$250,000 City match) 	<ul style="list-style-type: none"> • FY 2007: Shockoe CSO Retention Basin Access Ramp \$2,082,000.00 	<ul style="list-style-type: none"> •
Wastewater Treatment Facility	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • FY 2006: Primary and secondary sedimentation tanks \$11,000,000.00. 	<ul style="list-style-type: none"> •
Wastewater Collection System (Pumping and Separate Sanitary Sewer System)	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • FY 2007: Gambles Hill \$2,000,000.00 	<ul style="list-style-type: none"> •

Chesapeake Bay / James River Tributary Strategy Nitrogen and Phosphorus Control	<ul style="list-style-type: none"> • Water Quality Improvement Fund Technical Assistance Grant approved by DEQ at 90% of eligible expenses. Cost to be determined very soon (24 Oct 05) • Nutrient Credit Trading (See Appendix A) 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
---	--	--	--	--	--

City of Richmond, Virginia
Department of Public Utilities
2006 Compliance and Progress Report

Appendix A - Nutrient Credit Trading

The CSO Special Order requires *"The City annually seeks grant funding for CSO control projects in the LTCP from all applicable federal and state sources."* The City's programs are limited by available funding, and potential revenue from nutrient credit trading is consistent with their obligations to seek funding as well as to report on the success of their search efforts. This appendix summarizes the potential revenue from nutrient credit trading that City is exploring.

1. Trading Nutrient Credits from Excess DWF Capacity (DWF Capacity less Actual DWF)

A meeting on August 28, 2006 was held with Messrs. Kyle Winter and Allan Brockenbrough regarding the reporting method to show compliance with the General Permit. The DEQ proposed a reporting method that determined the discharge load by using the "first 45 mgd of flow" to show compliance with the dry weather flow (DWF) waste load allocation (WLA). The City disagreed with the "first 45 mgd of flow" method to report compliance with the WLA in the General Permit and demonstrated that the method will result in an unstable generation of nutrient credits that varies tremendously with the amount of wet weather flow treated year to year, as shown in **Table 1**. To stabilize the amount of nutrient credits available to trade in a given year, the City requested that the General Permit Registration List footnote be modified to allow the use of the actual dry weather flow.

**Table 1
Nitrogen Credits from Excess DWF Capacity**

Condition		Ann Ave Flow mgd	Total Nitrogen			The Exchange Preliminary Cost to Remove a Pound of Nitrogen \$/lb	Potential Annual Revenue
			Ann Ave Conc mg/l	Ann Ave Load lbs/yr	Load Available to Trade lbs/yr		
Richmond WLA		45	8	1,095,876			
DEQ's First 45 mgd Reporting Method	Dry Year (2001)	34.4	8	837,736	258,139	\$2.00	\$516,278
	Wet Year (2004)	44.7	8	1,088,570	7,306	\$2.00	\$14,612
Proposed Alternate Reporting Method Based on Actual DWF		38.1	8	927,841	168,034	\$2.00	\$336,068

The City indicated that significant environmental benefit for James River users would be provided and the actual DWF approach is a more consistent and reliable revenue stream to fund continued implementation of improvements identified in the CSO Special Orders. The potential revenue from trading could support debt service, which could be further leveraged if coupled with low interest loans from the Virginia Revolving Loan Fund program.

Unfortunately, DEQ did not accept the City's actual dry weather flow approach and published the "first 45 mgd of flow" method for WLA compliance reporting in General Permit Registration footnote. Absent this stabilization, Richmond will be perceived as inherently unreliable trading partners (due to high rainfall driven flow and load variability).

City of Richmond, Virginia
Department of Public Utilities
2006 Compliance and Progress Report

Appendix A - Nutrient Credit Trading

2. Trading Nutrient Credit associated with Increased Treatment

The City is exploring the possibility of improving the WWTP controls to generate nutrient credits for trading. **Table 2** shows the potential revenue that may be developed by reducing the total nitrogen concentration from 8 mg/L to 5 mg/L.

**Table 2
Nitrogen Credits from Increased Treatment**

Condition		Ann Ave Flow mgd	Total Nitrogen			The Exchange Preliminary Cost to Remove a Pound of Nitrogen \$/lb	Potential Annual Revenue
			Ann Ave Conc mg/l	Ann Ave Load lbs/yr	Load Available to Trade lbs/yr		
Richmond WLA		45	8	1,095,876			
DEQ's First 45 mgd Reporting Method	Dry Year (2001)	34.4	5	523,585	572,291	\$2.00	\$1,144,582
	Wet Year (2004)	44.7	5	680,356	415,520	\$2.00	\$831,039
Average Dry Weather Flow		38.1	5	579,901	515,975	\$2.00	\$1,031,950

The Nutrient Credit Exchange has initially set the nitrogen unit cost at about \$2.00 per pound of nitrogen removed. The decision to increase treatment to generate nutrient credits will be based on the following criteria:

- The City's cost of providing increased treatment compared to unit cost set by The Exchange.
- Risks associated with trading
- Potential revenue generated from nutrient credit trading

The City is developing a Preliminary Engineering Report for nutrient control at the Richmond WWTP that will include the evaluation of the above criteria. The City will finalize the decision to trade nutrient credits by July 2007.

City of Richmond, Virginia
Department of Public Utilities
2006 Compliance and Progress Report

Appendix A - Nutrient Credit Trading

3. Trading Wet Weather Flow Nutrient Credit associated with Increased Treatment

Since the Richmond WWTP treats combined sewerage, it also reduces non-point source nutrients associated with storm water. The DEQ has set a nitrogen concentration limitation of 8 mg/L in the Water Quality Management Planning Regulation, which is essentially a waste load allocation for the City's wet weather flows. The wet weather flow treated each year will vary substantially with the annual rainfall and the amount of storm water runoff reaching the WWTP. **Table 3** shows the potential wet weather flow nutrient credits that may be developed by reducing the total nitrogen concentration from 8 mg/L to 5 mg/L.

Table 3
WWF Nitrogen Credits from Increased Treatment

Condition		Ann Ave Flow mgd	Ann Ave DWF Flow mgd	Ann Ave WWF Flow mgd	Total Nitrogen		The Exchange Preliminary Cost to Remove a Pound of Nitrogen \$/lb	Potential Annual Revenue
					Ann Ave Conc mg/l	Additional Wet Weather Nitrogen Conc Removed mg/L		
Richmond WLA					8			
DEQ's First 45 mgd Reporting Method	Dry Year (2001)	37.7	34.4	3.3	5	3	30,137	\$2.00
	Wet Year (2004)	62.6	44.7	17.9	5	3	163,468	\$2.00

Discussions with DEQ will be required to determine if wet weather flow credits could be traded with the point source communities or if they could be traded with other non-point sources (may be handled as offsets). The City is interested in developing consistent and reliable revenue stream to fund continued implementation of improvements identified in the CSO Special Orders.